

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

A.L.M. HOLDING CO.,
ERGON ASPHALT & EMULSIONS, INC., and
MEADWESTVACO CORP.,

Plaintiffs,

v.

AKZO NOBEL SURFACE CHEMISTRY LLC,

Defendant.

Civil Action No. 1:13-cv-1069-GMS

JURY TRIAL DEMANDED

A.L.M. HOLDING CO.,
ERGON ASPHALT & EMULSIONS, INC., and
MEADWESTVACO CORP.,

Plaintiffs,

v.

ARR-MAZ CUSTOM CHEMICALS, INC.,

Defendant.

Civil Action No. 1:13-cv-1070-GMS

JURY TRIAL DEMANDED

PLAINTIFFS' OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiffs A.L.M. Holding Co. (“ALM”), Ergon Asphalt & Emulsions, Inc. (“Ergon”), and MeadWestvaco Corp. (“MeadWestvaco”) (collectively “Plaintiffs”) have proposed claim constructions that are consistent with the specifications and prosecution histories of U.S. Patent Nos. 7,815,725 (“the ‘725 patent”) (JA Ex. A) and 7,981,466 (“the ‘466 patent”) (JA Ex. B) (collectively, “the patents in suit”) and the meanings of the terms from the perspective of a person of ordinary skill in the art. In contrast, Defendants Akzo Nobel Surface Chemistry LLC and Arr-Maz Custom Chemicals, Inc. (collectively “Defendants”) seek to impose unwarranted meanings and limitations onto the claim terms, and wrongly argue that certain claim terms are indefinite. Plaintiffs’ proposed constructions and supporting arguments are set forth herein.

II. BACKGROUND OF THE PATENTS IN SUIT

A. Description of the Patented Technology

The inventions claimed in the patents in suit were breakthroughs in the asphalt pavement field—a warm mix asphalt composition and process made at lower temperatures with a novel combination of materials and methods that set it apart from the prior art. Prior to the patented invention, paving surfaces with a “hot mix” bituminous asphalt aggregate mixture—consisting of a petroleum-based “binder” (also known as asphalt or asphalt binder) and small gravel, sand, or similar fragments called “aggregate”—was well known. JA Ex. C (WO 2007/032915 A2 at 1:10-11).¹ Hot mixes are typically prepared by heating suitable aggregate to a temperature of about 270-370° F and mixed with a similarly hot bituminous binder until the aggregate is coated with the binder. *Id.* at 1:11-15. The hot mix is typically prepared at an asphalt plant, hauled to

¹ WO 2007/032915 A2 to Reinke entitled “Bituminous Paving Composition and Process for Bituminous Paving” is incorporated by reference in the patents at issue, as authorized by 37 C.F.R. § 1.57(d). ‘725 patent, 1:15-16.

the paving site, paved on to the road surface and then compacted before being allowed to cool and harden. *Id.* at 1:16-20. Hot mix paving disadvantages include thermal energy costs needed for suitable mixing and paving and potentially detrimental air pollution and workplace exposure effects. *Id.* at 1:20-24, 4:14-24; Declaration of John A. D’Angelo (“D’Angelo Decl.”) ¶ 8. In addition, because of the high temperatures required, hot mix cannot be used during the winter months without excessive cost and difficulty. D’Angelo Decl. ¶ 8.

In the late 1990s, “warm mix” asphalt was developed, achieving certain advantages of hot mixes, without certain disadvantages. JA Ex. C at 2:9-10; D’Angelo Decl. ¶ 6. Early warm mixes utilized a foaming process to enable coating of the aggregate with binder. JA Ex. C at 2:15-17. Although these foamed warm mixes could be paved at lower temperatures than hot mix, the foaming process required to create the foamed warm mix was more extensive and complex than the hot mix process. JA Ex. C at 2:17-19.

Faced with the disadvantages of hot mix and early warm mixes, three of Plaintiffs’ lead asphalt scientists—inventors Gerald H. Reinke and Steven L. Engber of ALM, and Gaylon L. Baumgardner of Ergon—invented a novel warm mix asphalt paving composition and process. Their inventions result in pavings that are comparable to hot mix pavings, but are made at warm mix temperatures and utilize a far less burdensome process (including the elimination of the wet foaming step) than the early foamed or emulsified warm mix processes. JA Ex. A (‘725 patent 1:28-60).² The inventions of the patents in suit thus claim a substantially water-free, non-foamed, warm mix paving technology that has all of the advantages of traditional warm mix but solves its key drawbacks.

² The substantive specifications of both the ‘725 and ‘466 patents are identical. The page:line citations herein are to the ‘725 patent unless otherwise indicated.

The inventions relate to asphalt paving compositions and methods. Therefore, a person of ordinary skill in the art would have knowledge and experience relating to the design, production and use of hot mix and warm mix asphalt paving compositions for various applications. D'Angelo Decl. ¶ 9. Such a person would be able to design mixes for specific projects, taking into account such variables as environmental conditions, aggregate conditions, and specifications provided by government agencies and/or private customers. *Id.* ¶ 10. A person of ordinary skill in the art would have a high school diploma and post-secondary education at the certification level coupled with 5-10 years of experience in the area of asphalt mix design and/or asphalt quality control, or a bachelor's degree in chemistry or civil engineering coupled with 2-5 years of experience in the area of asphalt mix design and/or asphalt quality control. *Id.* ¶ 13.

B. Prosecution History

The applicants filed their original provisional application in September 2007, followed by a non-provisional application on October 12, 2007, which then issued as the '725 patent on October 19, 2010. *See* JA Ex. A ('725 patent, cover page). Although it claims priority to the '725 patent's applications, the '466 patent resulted from a divisional application filed on October 1, 2010, which issued on July 19, 2011. *See* JA Ex. B ('466 patent, cover page).

In addition to the original examination, the '725 patent has been reexamined by the Patent Office. Two *ex parte* reexamination requests (including one filed by Defendant Arr-Maz) were filed against the '725 patent in 2011, and concluded upon the issuance of a reexamination certificate in April 2013. *See* JA Ex. A ('725 patent, Certificate of Reexamination). The '725 patent, as reexamined, has 52 claims relating to warm mix asphalt paving compositions. *Id.* The

‘466 patent has 26 claims relating to warm mix asphalt paving methods. JA Ex. B (‘466 patent at 13:44-16:30).

Plaintiffs ALM and Ergon are co-owners of the patents in suit, and Plaintiff MeadWestvaco is the exclusive licensee under the patents. Complaint ¶¶ 12-13.

III. LEGAL STANDARDS

The standards for claim construction are well known to the Court. To the extent Plaintiffs believe that a specific claim construction issue would benefit from a discussion of a particular claim construction principle, it is addressed in the claim term sections below.

IV. CONSTRUCTION OF CLAIM TERMS

A. “functionally dry” / “essentially water free”

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“functionally dry” (‘725 Claims 1, 25; ‘466 Claims 12, 17, 22)	Each of the terms “functionally dry” or “essentially water free” means or is intended to refer to an asphalt binder composition that contains less water or moisture than is routinely used in conventional or known (i.e., foamed or emulsified) warm mixes.	Indefinite under 112, but for purposes of claim construction, Defendants propose the following: As used in the present invention, each of the terms “functionally dry” or “essentially water free” means or is intended to refer to “an asphalt binder composition that contains less water or moisture than is routinely used in conventional or known warm mixes.”
“essentially water-free” (‘725 Claims 1, 25; ‘466 Claims 12, 17)	Same as “functionally dry” above.	Same as “functionally dry” above.

The ‘725 and ‘466 patents claim “functionally dry” and “essentially water-free” compositions and methods. *See* JA Ex. A (‘725 patent, claims 1 and 25); JA Ex. B (466 patent, claims 12 and 17). The patentees expressly defined these terms together in the patent

specifications, contrasting the present invention with the foamed and emulsified processes in the prior art, which used added water:

asphalt binder or cement. The present invention thus relies, in part, in determining that the lubricating properties of additives added to an asphalt binder or cement are an important component of the present warm mix asphalt mixtures and that it is not necessary or essential to use foamed asphalt binders or emulsified asphalt binders that are used in conventional warm mix asphalt binder compositions, mixtures and paving processes.

As used in the present application, each of the terms “functionally dry” or “essentially water-free” means or is intended to refer to an asphalt binder composition that contains less water or moisture than is routinely used in conventional or known warm mixes. This term does not mean and is not

2:35-47 (highlighting added).

As the excerpts from the specifications show, the patentee acted as his own lexicographer to clearly and explicitly define “functionally dry” and “essentially water-free” in contrast to conventional foaming and emulsion processes. “[I]f the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history,” then that term governs. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). Specifically, the specification defines the terms “functionally dry” and “essentially water-free” in the second paragraph of the passage cited above, and it does so with reference to binders routinely used in conventional or known warm mixes. In the immediately preceding sentence, the patentee identifies “foamed asphalt binders or emulsified asphalt binders” as the binders used in “conventional warm mix asphalt binder compositions.” Then, the patentee defines “functionally dry” and “essentially water-free” by contrast to those asphalt binder compositions. Thus, in light of the *entire* highlighted passage quoted above from the specification, Plaintiffs’ proposed construction of the terms “functionally dry” and

“essentially water-free” reflects the distinction between the prior art warm mix systems and the patentees’ innovation. Accordingly, Defendants’ proposal should be rejected, and Plaintiffs’ proposal adopted.

B. “non-foamed”

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“non-foamed” (‘725 patent claims 1, 25; ‘466 patent claims 12, 17)	“not produced using a foaming process”	“asphalt binder that does not contain foam”

The claim term “non-foamed” refers to asphalt binder that is not produced using a foaming process. Specifically, the ‘725 patent claims “[a] warm mix asphalt paving composition comprising ... functionally dry, essentially water-free, *non-foamed asphalt binder*.” See JA Ex. A (‘725 patent, claims 1 and 25) (emphasis added). This construction embodies the term’s plain and ordinary meaning and fully comports with the intrinsic and extrinsic evidence.

The past tense³ of the claim term and the specification confirm that “non-foamed” describes that *the asphalt binder has not been produced or processed by foaming it*, as opposed to Defendants’ focus on the *current state* of the asphalt binder (i.e., whether it “does not contain foam”). The Background section of the specification distinguishes the prior art as disclosing warm mix products and processes that “inject[] a foaming, lubricating aqueous solution into a stream of asphalt cement.” 1:16-24; 2:19-22; *see also* 2:27-35. The specification refers to these prior art binders as “foamed asphalt binders.” *Id.* at 2:39. This confirms that “foamed” (and likewise, “non-foamed”) refers to the *processing* of the binder through foaming. Example 5,

³ “[N]on-foamed” uses the past tense of the verb “foam,” consistent with the disclosure of the patents: “foaming” is an action performed on the binder. This is reflected in Plaintiffs’ construction, which incorporates the gerund form (“foaming”) of the verb “foam.” Defendants’ construction, however, completely departs from the patent’s disclosure by converting the verb “foam” into the noun “foam”—presumably to distort the claim scope to include even miniscule amounts of foam incidentally present in binder, regardless of the process.

which compares a composition made with a prior art foamed process with a composition made with the invention's non-foamed process, provides further support. *See, e.g., id.* at 9:34-38 (“The binder recovered from the mixture *produced using the foaming, lubricating solution* had a test value of 1.27 kiloPascals and the binder recovered from the mixture *produced using the procedure of this invention* had a test value of 1.99 kiloPascals.”) (emphasis added).

The prosecution histories confirm that “non-foamed” refers to binder that has not been produced or processed using foaming. During prosecution of the ‘725 patent, the applicants referred to “Example 5 which illustrates the differences between a foamed asphalt binder and a non-foamed asphalt binder.” JA Ex. F (March 2, 2010 Amendment at 7). This, coupled with the language of Example 5 (quoted above), confirms that the applicants understood the term “non-foamed” to refer to an asphalt binder which has not been produced or processed by foaming it. The prosecution history also shows that the applicants distinguished the prior art on grounds that it described “a process that uses water to generate a foamed asphalt binder composition,” and thus it did not teach or suggest “a mixture of aggregate and non-foamed, functionally dry or essentially water-free asphalt binder.” JA Ex. F (March 2, 2010 Amendment at 9). Similarly, during prosecution of the ‘466 patent, the applicants stated that the prior art process “generates a foamed asphalt binder composition, not a non-foamed asphalt binder.” JA Ex. G (April 28, 2011 Response to Office Action at 8). Thus, a person of ordinary skill in the art would understand that a “non-foamed” binder is one that is not produced by a foaming process. Accordingly, Plaintiffs’ proposed construction should be adopted.

C. The “coated” terms⁴

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“coated” (‘725 patent claims 1, 25; ‘466 patent claims 1, 12- 14, 17) “coating” (‘466 patent claims 18) “to coat” (‘466 patent claims 1, 12, 17, 20)	“coated” should have its plain and ordinary meaning, but if the Court requires a further construction, “coated” means “having binder on all or substantially all surfaces”	“coated” means “100% coated with binder”

The “coated” terms are used in the ‘725 and ‘466 patents to describe the coating of aggregate with asphalt binder containing lubricating additive. For example, the ‘466 patent recites, “mixing a non-foamed asphalt binder composition and lubricating additive... with aggregate... to coat the aggregate.” *See* JA Ex. B (‘466 patent, claim 1). The “coated” terms are readily understandable to a person of ordinary skill in the art and do not require specific constructions. However, if the Court requires a further construction above and beyond the terms’ plain and ordinary meanings, then the “coated” terms should be construed to mean that binder is on “all or substantially all surfaces” of the aggregate.

This construction is in accord with the terms’ plain and ordinary meanings and fully comports with the intrinsic and extrinsic evidence. The patent specification discloses that the binder should coat the aggregate at a level that is “acceptable” (2:61-66), “adequate” (3:1-4, 3:39-47, 4:62-67), and “thorough” (13:23-28). One preferred embodiment of the patent discloses that “good coating” was achieved (11:8-12), and another preferred embodiment discloses that the

⁴ The “coated” terms are: “binder-coated” (‘725 Claims 1, 25; ‘466 Claims 1a, 12b, 13, 14, 17a); “coated with binder and lubricating additive” (‘725 Claims 1, 25); “to coat” (‘466 Claims 1a, 12b, 17a, 20c); “coated” (‘725 Claims 1, 25; ‘466 Claims 1a, 12b, 13, 14, 17a); and “coating” (‘466 Claim 18). They are listed, along with the parties’ specific claim construction proposals for these terms, on pages 5-6 of the Amended Joint Claim Chart.

aggregate was “well coated” (11:35-36). These disclosures and embodiments convey the plain and ordinary meaning that the binder must coat the aggregate such that all or substantially all of the aggregate surface is coated with binder, leaving minimal (if any) exposed aggregate surface. Tellingly, several of the patent’s examples achieve 100% coating of the aggregate, and the patent describes them as “100% coated.” *See* Examples 5 (9:3), 7 (10:21-22), and 11 (11:65). If “coated” by itself meant “100% coated” (as Defendants argue), then the phrase “100% coated” would be internally redundant, and thus unnecessary. Accordingly, “coated” also includes a coating that may be less than 100%, but covers substantially all of the aggregate. Nothing in the remainder of the intrinsic record contradicts this clear teaching.

A person of ordinary skill in the art reading the patent’s disclosures would understand that perfect coating (i.e., 100%) is not required to yield a degree (i.e., all or substantially all) of coating adequate to accomplish the invention’s goal of providing a warm mix asphalt paving composition. This is consistent with the way the term “coated” is used in the asphalt industry, and the way a person of ordinary skill in the art would have understood the term “coated” at the time of the earliest filing date. *See* D’Angelo Decl. ¶¶ 18-21.

D. the “warm mix” terms⁵

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Constructions	Defendants’ Proposed Constructions
“warm mix temperature” (‘725 patent claims 1-52; ‘466 patent claims 1, 12-14, 17, 19- 22)	“a temperature at least 30° F lower than used in conventional hot-mix asphalt”	§ 112 indefinite

⁵ The “warm mix” term are listed, along with the parties’ specific claim construction proposals for these terms, on pages 7-12 of the Amended Joint Claim Chart.

Generally, the “warm mix” claim terms include composition claim terms describing:

- paving compositions created by using warm mix processes (“warm mix paving material,” “warm mix paving composition,” and “warm mix asphalt paving composition”);
- binder compositions used to create such paving compositions (“warm mix lubricated asphalt binder composition” and “warm mix asphalt binder composition”);
- the temperatures at which such paving compositions are created and used (“warm mix temperature,” “warm mix temperature range,” and “warm mix paving temperature”).

All of the “warm mix” claim terms are expressly defined in the claim language and understandable to a person having ordinary skill in the art.⁶

The claim language itself consistently indicates that “warm mix” temperatures are at least 30° F lower than those temperatures used in conventional hot-mix asphalt. Indeed, every claim

⁶ Dependent claims 15-18 and 39-42 contain an error that is evident from the face of the patent and that can be corrected by this Court. *See Group One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1303 (Fed. Cir. 2005). Specifically, the claims erroneously recite “a warm mix asphalt *binder* composition according to claim [1 or 25]” instead of “a warm mix asphalt *paving* composition according to claim [1 or 25].” The error is evident from the face of the patent because independent claims 1 and 25, from which claims 15-18 and 39-42 depend, claim a “warm mix asphalt *paving* composition,” not a “warm mix asphalt *binder* composition.” Thus, the dependent claims as issued have an error on their face. Moreover, the additional limitations in claims 15-18 and 39-42 are intelligible only when the claims’ preambles refer to a *paving* composition rather than a *binder* composition. The ‘725 prosecution history “does not suggest a different interpretation of the claims,” *Group One Ltd.*, 407 F.3d at 1303. On the contrary, the prosecution history shows that the error was due to an inadvertent substitution of *binder* for *paving*—a substitution not present in *any* other dependent claim. Specifically, claims 15-18 were originally added in prosecution as new claims 50-52 (JA Ex. F (March 2, 2010 Amendment at 5-7)) and claims 39-42 were added as new claims 39-42 (JA Ex. H (Sept. 28, 2012 Amendment and Response at 7, 9-10, 24)). Each of the claims included a preamble claiming “An asphalt binder composition according to claim 1.” *Id.* Such preamble language corresponded to the language of claim 1 (JA Ex. N (Oct. 12, 2007 Original Application at 21)), but not the amended language of claim 1. Thus, the preambles of claims 15-18 and 39-42 erroneously refer to the original claim language. Accordingly, the correction “is not subject to reasonable debate based on consideration of the claim language and the specification,” and “the prosecution history does not suggest a different interpretation of the claims.” *Group One Ltd.*, 407 F.3d at 1303. Plaintiffs therefore request that the Court make this correction.

(except claim 20 of the '466 patent and its dependent claims 21-23) expressly requires that the claimed invention be produced at a temperature that is at least 30° F lower than the temperature at which a comparable hot mix asphalt would be produced. This confirms the definition of “warm mix” temperature as consistent with Plaintiffs’ proposed construction.

The patent specification also supports Plaintiffs’ construction. The specification recites that the invention provides “asphalt binder compositions that can be adequately mixed with aggregate at temperatures 30-50° F. lower, even more than 50° F. lower, or as much as 100° F. lower than a substantially similar asphalt binder or cement that does not contain these lubricating additives or combinations thereof.” 1:40-45; *see also* 3:43-47 (the invention provides “sufficient lubrication of the asphalt cement so that aggregate may be adequately coated at temperatures 30-50° F. lower, even more than 50° F. lower, or as much as 100° F. lower than the temperatures normally needed to produce a bituminous mixture without an added lubricating additive or agent”); 4:66-5:2 (the invention provides that “aggregate may be adequately coated at temperatures 30-50° F., or greater difference, below the temperatures normally needed to produce a bituminous mixture without the phosphoric acid additives”).

The prosecution history also indicates that “warm mix” means that the mix temperature is at least 30° F lower than used in conventional hot-mix asphalt. For example, the applicants distinguished cited prior art by explaining that “Krogh et al. do not teach or suggest an asphalt paving composition containing a lubricating additive that lowers production temperatures to a warm mix temperature which is at least 30°F lower than a comparison production temperature needed to produce a comparison paving composition containing the asphalt binder and aggregate without the lubricating additive.” JA Ex. D (May 13, 2009 Amendment and Response at 10). The applicants later reiterated this point, stating that three cited prior art references, whether alone or in combination, “would not provide an asphalt paving composition ‘produced at a warm

mix temperature which is at least 30° F lower than a comparison production temperature needed to produce a comparison paving composition containing the asphalt binder and aggregate without the lubricating additive’ as recited in amended claim 1.” JA Ex. E (June 19, 2009 Supp. Remarks at 3).

In addition, the applicants’ March 2, 2010 Amendment explicitly stated that the sole independent claim pending in the application “is directed to a warm mix asphalt paving composition . . . produced at a warm mix temperature which is at least 30° F lower than a comparison production temperature needed to produce a comparison paving composition containing binder-coated aggregate without the lubricating additive.” JA Ex. F (March 2, 2010 Amendment at 7-8). Further, a person having ordinary skill in the art at the time would have been familiar with the term “warm mix” and would have understood it to be consistent with Plaintiffs’ proposal. *See* D’Angelo Decl. at ¶ 14.

Plaintiffs’ construction is well-reasoned and supported by the intrinsic and extrinsic evidence, and thus should be adopted.

E. “is produced at and is at”

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“is produced at and is at” ('725 patent claims 1, 25)	Plain and ordinary meaning, but if the Court requires a further construction: “is produced at and, at some point after production, is at”	Indefinite under § 112, but for purposes of claim construction: “is produced at and after production is at”

The claim term “is produced at and is at” requires no construction and should be afforded its plain and ordinary meaning because it is clear that a person of ordinary skill in the art would have no difficulty understanding that the claim term relates to the temperature of the warm mix asphalt paving composition during production (“is produced at”) and at some point after

production (“is at”). However, if the Court requires a further construction above and beyond the term’s plain and ordinary meaning, Plaintiffs propose that “is produced at and is at” means that the warm mix asphalt paving composition *is produced at* a warm mix temperature, and *is* in fact *at* a warm mix temperature at some point after production.

This construction is in accord with the term’s plain and ordinary meaning and is in harmony with the intrinsic evidence. In fact, every example in the patents in suit discloses a warm mix asphalt paving composition that is produced at a warm mix temperature and is also at a warm mix temperature at some point after production. The first, second, and third embodiments of the ‘725 invention “may be mixed with aggregate at a temperature of about 280° F and lower temperatures” and the resulting mixture “**may be compacted** at a temperature of about 260° F” (12:45-54 (emphasis added)), both of which are characterized as warm mix temperatures, which the specification distinguishes from the hot mix temperatures.⁷ Similarly, Example 5 teaches that the claimed warm mix asphalt paving composition may be “produced **and compacted** under warm mix conditions” (9:53-59 (emphasis added)), Example 6 was produced at 220-240° F **and compacted** at 205-220° F (10:1-3 (emphasis added)), and Example 7 was produced at 210-260° F **and discharged** at 225-235° F (10:17-22 (emphasis added)).

Accordingly, should the Court require a construction of the claim term “is produced at and is at,” the term means “is produced at and, at some point after production, is at.”

⁷ The specification explains that the hot mix temperatures required for mixing and compacting would be 70-100°F higher than the stated temperatures for these three warm mix embodiments. 12:39-43.

F. the “comparison” terms⁸

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“comparison” terms (‘725 patent claims 1, 13, 14, 25, 37, 38, 2, 26; ‘466 patent claims 1a, 12b, 13, 14, 17a)	“the minimum temperature needed to produce a comparable paving composition without the lubricating additive”	This term is indefinite under § 112, but for purposes of claim construction, Defendants propose the following: “the minimum temperature needed to produce the paving composition without the lubricating additive”

The claim language of each of the “comparison” terms includes the phrase “comparison paving composition.” This phrase must be reflected in the proper construction of the term. Plaintiffs’ construction conveys the meaning of the word “comparison” by including the word “comparable” in its proposed construction. Defendants, on the other hand, seek to write the term “comparison” completely out of the patent by eliminating that term.

The patent specification refers extensively to such comparison temperatures, explicitly and implicitly. The specification states:

This application discloses that surfactants in both aqueous or non-aqueous form and waxes are two general classes of lubricating additives that may, when incorporated into an asphalt binder or cement at levels as low as 0.1 wt %, provide sufficient lubrication of the asphalt cement so that aggregate may be adequately coated at temperatures 30-50° F. lower, even more than 50° F. lower, or as much as 100° F. lower than the temperatures normally needed to produce a bituminous mixture without an added lubricating additive or agent.

⁸ The “comparison” terms are: “a comparison temperature needed to produce a comparison paving composition containing binder-coated aggregate without the lubricating additive,” “a comparison paving temperature needed for proper paving of the comparison paving composition,” and “a comparison production temperature needed to produce a comparison paving composition containing binder-coated aggregate without the lubricating additive.” These terms are listed, along with the parties’ specific claim construction proposals for these terms, on pages 13-15 of the Amended Joint Claim Chart.

3:39-47. The specification also recites eleven examples comparing a “warm mix asphalt paving composition” containing a lubricating additive to a “comparison paving composition containing binder-coated aggregate without the lubricating additive.” *See* ‘725 patent, Examples 1-11, 7:15-12:15. Examples 1-11 are structured such that the comparison is between *comparable* paving compositions, i.e., compositions wherein the only differences are the use of additives and the operative temperatures, yet the resulting pavements have comparable characteristics such as pavement densities. *See, e.g.*, ‘725 patent, Example 5 (9:4-6) (warm mix “achieving the density values expected of a hot mix asphalt”); Example 7 (10:24-28) (warm mix pavement densities compared favorably with “densities when this type of mix is placed as a hot mix”). Thus, the teaching of the specification makes clear that the proper comparison is with a *comparable* paving composition, i.e., one with comparable pavement properties.

The prosecution history further confirms that the “comparison” terms require comparing the warm mix composition to a *comparable* hot mix composition. During prosecution of the ‘725 patent, the applicants amended claim 1 and explained that “claim 1 has been amended to recite that the listed lubricating additives provide an asphalt binder composition that allows a significant reduction in the temperatures used to coat aggregate for use in paved surfaces *compared to similar asphalt binders that do not include these lubricating additives.*” JA Ex. I (Nov. 20, 2008 Amendment and Response at 6 (emphasis added)); *see also* JA Ex. D (May 13, 2009 Amendment and Response at 7 (the claimed invention “allows for a significant reduction used in paved surfaces compared to asphalt paving compositions that do not include these lubricating additives.”)). Again, this indicates that the “comparison” must be made against a *comparable* asphalt composition. Thus, Plaintiffs’ proposal should be adopted.

G. the “lubricating” terms⁹

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Constructions
“lubricating” terms (‘725 patent claims 1, 6, 9-12, 19, 24, 25, 30, 33, 34, 43, 48-52; ‘466 patent claims 1, 4, 5, 10-14, 17, 20, 24-26)	Plain and ordinary meaning, but if the Court requires a further construction: “allowing easier motion between two or more objects”	Defendant Akzo Nobel: No construction necessary. Defendant Arr-Maz: “providing a reduction in the normal force of an asphalt binder with an additive as compared to the normal force of the asphalt binder without the additive at high rotational velocities”

Plaintiffs and Defendant Akzo Nobel agree that the “lubricating” terms need no construction, and thus they should be afforded their plain and ordinary meaning. Defendant Arr-Maz proposes an esoteric definition that would require complex normal force calculations. “Lubricating” is a commonplace term that is clear on its face and has a well-understood meaning. Nothing in the disclosure of the patents in suit requires a departure from that meaning. Plaintiffs’ and Akzo Nobel’s proposal is therefore correct. In the event that the Court deems a construction necessary, however, the Court should adopt a definition that is based on the commonly understood meaning of the term “lubrication.” Thus, Plaintiffs propose that a “lubricating” additive or substance means simply an additive or substance “that allows easier motion between two or more objects.”

Nothing in the ‘725 or ‘466 patents indicates that the “lubricating” terms should be given any special meaning. Because the term is well known, the plain and ordinary meaning of the terms should be adopted. To the extent that the Court finds that the use of a dictionary would be

⁹ The “lubricating” terms are: “lubricating,” “lubricated,” “lubricating additive,” “lubricating substance,” and “lubricating substance consisting of an antistripping agent.” These terms are listed, along with the parties’ specific claim construction proposals for these terms, on pages 15-25 of the Amended Joint Claim Chart.

useful, however, a common dictionary definition of “lubricate” is “to apply a substance such as oil or grease to (an engine or component) to minimize friction and allow smooth movement.” Declaration of M. Curt Lambert (“Lambert Decl.”) ¶ 3 Ex. A (Oxford Dictionary of English (2005) at 1042). This construction is in accord with the terms’ plain and ordinary meaning and fully comports with the intrinsic and extrinsic evidence.

H. “viscosity modifier” and “dispersant viscosity modifier”

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Constructions	Defendants’ Proposed Constructions
“viscosity modifier” (‘466 patent claims 1, 12, 17, 24-26)	“a substance that stabilizes viscosity as temperature changes”	§ 112 indefinite.
“dispersant viscosity modifier” (‘466 patent claims 1, 12, 17, 24-26)	“a substance that stabilizes viscosity as temperature changes and disperses debris within a liquid”	§ 112 indefinite.

The ‘466 patent claims processes using particular classes of substances known as “viscosity modifiers” and “dispersant viscosity modifiers.” These substances, which stabilize the viscosity of liquids as temperature changes, were known to those of ordinary skill in the art in 2007. As reflected in the specification of the ‘466 patent, a principal use of viscosity modifiers and dispersant viscosity modifiers is to stabilize viscosity in petroleum products such as engine oils. JA Ex. B (‘466 patent, 4:42-54). The ‘466 specification lists several examples of such viscosity modifiers used in engine lubricating oils. *Id.*

Other patent documents from the same time period are squarely consistent with this use of the terms, and they confirm that “viscosity modifiers” referred to such viscosity-stabilizing agents as used in petroleum products. For example, U.S. Patent No. 7,820,607 (the “‘607 patent”) (Lambert Decl. ¶ 4 Ex. B), published in 2007, is directed to a “viscosity modifier for lubricating oils.” ‘607 patent, Title, Abstract. The description of the background art explains:

Petroleum products generally exhibit a large variation in viscosity with variation in temperature. For lubricating oils used for automobiles or the like, it is preferable that such a temperature dependence of viscosity is small. In order to decrease the temperature dependence of viscosity, an ethylene/ α -olefin copolymer having an effect of improving viscosity index is widely used as an ingredient blended in lubricating oils.

Id. at 1:21-28. As seen in this example, the ‘607 patent teaches use of an olefin copolymer, which is one of the examples of viscosity modifiers in the ‘466 specification. ‘466 patent, 4:51. Likewise, U.S. Patent No. 7,750,089 (the “’089 patent”), published in 2007 and titled “Dispersant viscosity modifiers based on diene-containing polymers,” explains that “viscosity improvers are often used [in lubricating oils] to reduce the extent of the decrease in viscosity as the temperature is raised or to reduce the extent of the increase in viscosity as the temperature is lowered, or both.” Lambert Decl. ¶ 5 Ex. C (’089 patent at 1:20-25). The patent goes on to describe the utility of dispersant viscosity modifiers in dispersing debris (“soot”) in lubricating oil. *Id.* at 1:27-62.

Thus, the examples in the ‘466 patent specification, as well as other patent documents from the same time period, clearly reflect the common understanding of skilled artisans in 2007: viscosity modifiers are substances that stabilize viscosity as temperature changes, and dispersant viscosity modifiers further serve to disperse debris within a liquid. Plaintiffs’ proposed constructions are thus appropriate.

I. “suitable aggregate”

Specific Claim Term(s) Requiring Construction	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
“suitable aggregate” (‘466 Claims 20b)	“aggregate suitable for use in the warm mix paving composition”	§ 112 indefinite.

The claim term “suitable aggregate,” appearing in claim 20 of the ‘466 patent, is readily understandable to a person of ordinary skill in the art. Read in context, the term is eminently

straightforward—“suitable aggregate,” in a claim directed to a warm mix paving process, means “aggregate suitable for use in the warm mix paving composition.” This plain meaning is borne out by the intrinsic and extrinsic evidence.

It is well understood in the asphalt paving industry that aggregates vary, for example, in mineral composition, particle size, and moisture content. *See* D’Angelo Decl. at ¶ 23. Asphalt mix designers recognize this variability and will select an aggregate with properties suitable for the circumstances of a particular paving project. *Id.* The ‘466 patent specification naturally reflects this well-understood variability and mentions parameters including moisture content (‘466 patent at 2:56-58); particle size (*Id.* at 3:10); and composition (*Id.* at 9:3 (gravel); 10:16 (limestone); 10:46 (recycled aggregate)). Clearly, the selection of an aggregate suitable for a particular project is “information readily understood by practitioners.” *Verve, LLC v. Crane Cams, Inc.*, 311 F.3d 1116, 1119 (Fed. Cir. 2002); D’Angelo Decl. at ¶ 23. A skilled artisan would therefore understand the patentee’s straightforward description of this standard step in the production process.

V. CONCLUSION

For the reasons stated herein, Plaintiffs respectfully requests that the Court adopt Plaintiffs’ proposed constructions for the at-issue claim terms.

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